

## A. York refrigerant compressor

## Data, test values

Designation	Models	Models
Electromagnetic cutout clutch 12 V	4/5 cylinders Pitts 6.0 inch	6 cylinders Pitts 6.7 inch
Power input	Cold 3.5 amps.	Warm 2.8 amps.

Tightening torques	Nm	(kpm)
Screws (52) coil to refrigerant compressor	14	(1.4)
Screw (51) pulley to crankshaft	20–27	(2.0–2.7)

## Special tool

Pulling screw for pulley



100 589 00 35 00

## Conventional tools

Double open-end wrench 3/8" x 7/16", 1/2" x 9/16"

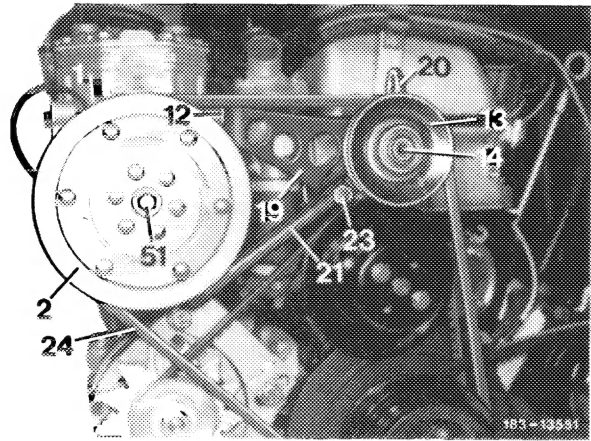
## Note

For pulling pulley from crankshaft of refrigerant compressor (with V-belt mounted) energize electromagnetic clutch (clutch will attract). With refrigerant compressor removed, carefully hold pulley with water pump pliers while supporting pliers against fastening screws of coil.

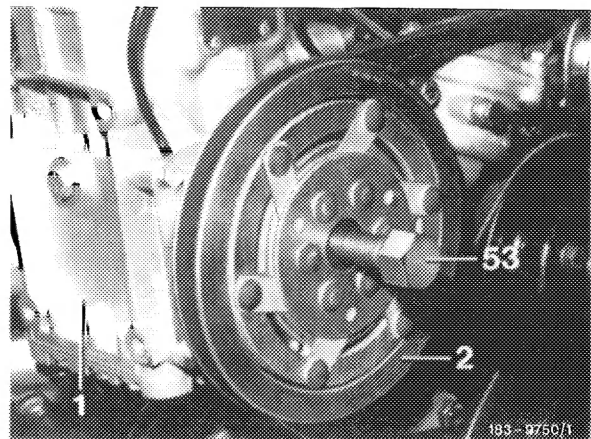
Prior to removing clutch, check power input on clutch. Replace clutch if power input exceeds 6.0 amps.

## Removal

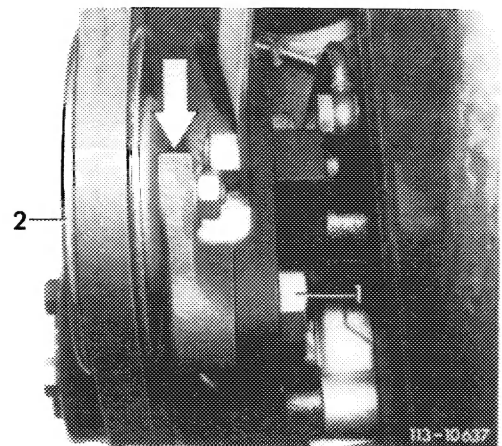
- 1 Actuate electromagnetic clutch while switching on ignition, cooling blower and temperature switch.
- 2 Unscrew screw (51).



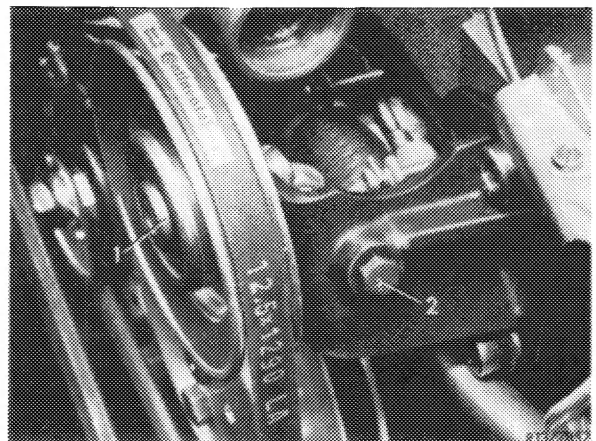
- 3 Pull pulley of electromagnetic clutch (2) from crankshaft of refrigerant compressor (1) with pulling screw (53).
- 4 Switch off ignition.
- 5 Disconnect electric line on cable connector.



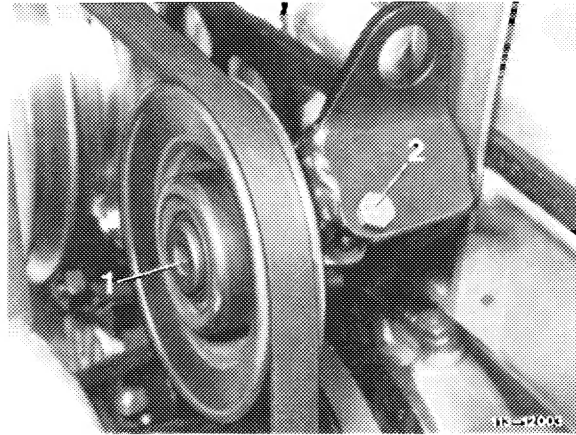
- 6 Remove V-belt for refrigerant compressor from electromagnetic clutch by loosening hex. screw (1) or necked-down screw (1) and swivelling pulley tensioning roller in downward direction, or slacken V-belt by means of tensioning screw (2).



Belt-tensioning roller engines 115, 615, 616, 617



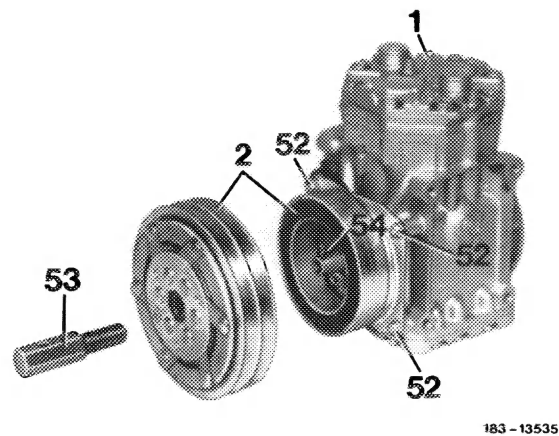
Belt-tensioning roller engine 110



Belt-tensioning roller engine 123

7 Remove belt-tensioning roller of electromagnetic clutch (2) while paying attention to spring washer (54).

8 Unscrew 4 screws (52) and remove coil.



### Note

If the same clutch is installed again, check friction surfaces of clutch for damage. If score marks are showing up on friction surfaces or burned spots caused by overheating, completely replace clutch.

### Installation

9 Turn crankshaft of compressor so that keyway is facing upwards.

10 Screw coil with inch screws (52), which are painted with "Loctite heavy 270 green" prior to assembly, to refrigerant compressor in such a manner that the outlet of the electric line is on top.

11 Insert spring washer (54) into crankshaft.

12 Mount pulley and slightly tighten with inch screw (51) and washer in place.

13 Connect electric line of supplementary harness and of electromagnetic clutch to cable connector. Mount ground line between cable connector and refrigerant compressor.

14 Check V-belt and pulley tensioning roller. Mount V-belt and tension with pulley tensioning roller.

**Note:** Low-stretch V-belts are correctly tensioned, if they respond elastically to sturdy thumb pressure. New low-stretch V-belts are subject to a slight elongation which occurs on this type of V-belt already after a few minutes of operation. It is therefore of decisive importance for life of V-belts that they are once again tensioned following that short running-in period (Maintenance Manual item 756 and 757).

15 Actuate electromagnetic clutch while switching-on ignition, blower and air-conditioning system. Then tighten screw (51).

16 Check electromagnetic clutch for function.



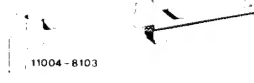

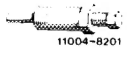





## B. Delco refrigerant compressor

### Data, test values

Designation	engines 615, 616, 617.912, 617.952
Electromagnetic cutout clutch 12 V	Delco 4.9 inch
Power input in amps. at 13.5 V	cold 3.9 warm 3.4

Tightening torques	Nm	(kpm)
Screws (8) belt pulley/clutch	11	(1.1)
Screw M 10 x 30 pipeline to refrigerant compressor	50 ± 3	(5 ± 3)
Nut (1) on drive shaft	13	(1.3)
Screws (5 and 6) M 12 refrigerant compressor on carrier	60 + 10	(6 + 1)
Hose line (14) from evaporator to pipeline 7/8"	29–37	(2.9–3.7)
Hose line (15) from pipeline to condenser 7/8"	29–37	(2.9–3.7)

### Special tools

Holding device for refrigerant compressor	 11004-8103	116 589 14 31 00
Holding wrench for clutch	 11004-8104	116 589 04 40 00
Disassembling tool for clutch plate	 11004-8201	000 589 07 35 00
Assembling tool with spacer for spring plate	 11004-8200	000 589 49 43 00
Guide piece	 11004-8203	116 589 05 63 00
Double-claw removing tool	 11004-7201	000 589 88 33 00
Knocking-out mandrel	 11004-6950	115 589 02 35 02
Pressing-off plate for refrigerant compressor	 11004-7632	109 589 00 25 00

### Conventional tools

Socket 14 mm, 3/8" square	e.g. made by Hazet, 5630 Remscheid
Feeler gauge (set)	e.g. made by Hazet, 5630 Remscheid order No. 2147
Langbeck pliers 72 A (internal lock)	e.g. made by Hazet, 5630 Remscheid order No. 1846 a-1
Pliers for retaining ring J 2 (external lock)	e.g. made by Hazet, 5630 Remscheid order No. 1846 c-2

### Self-made tool

Disassembling tool for O-ring

### Note

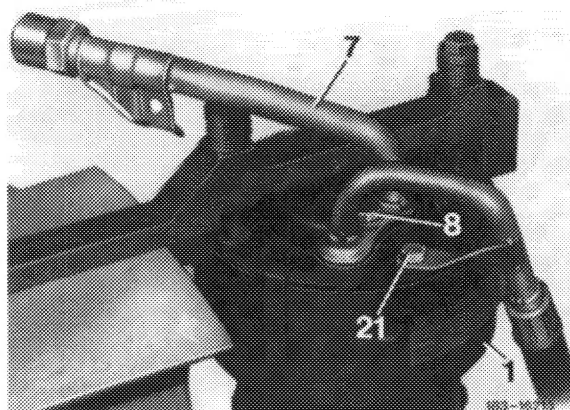
Removal and installation of spring plate, of clutch with belt pulley and magnet coil, as well as shaft sealing may only be performed with the refrigerant compressor removed.

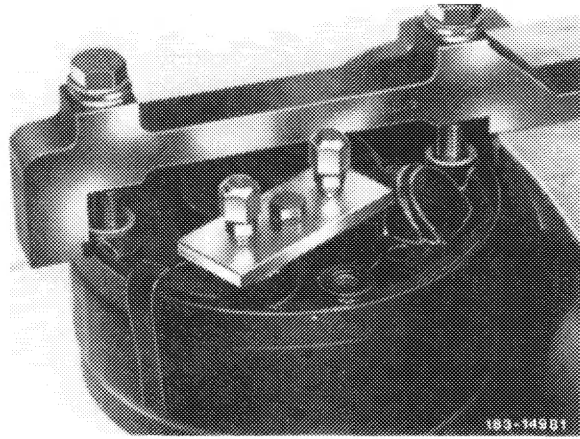
The clutch with support, the belt pulley and the magnet coil are forming one assembly. In the event that one part of this assembly must be replaced, the complete assembly shall be removed (refer to 83–526, section b).

#### a) Removal and installation of spring plate

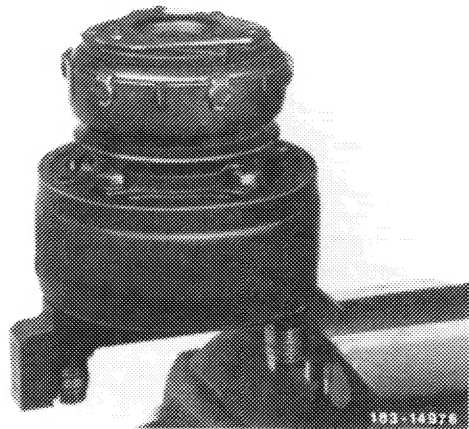
##### Removal

- 1 Evacuate air-conditioning system (83–516).
- 2 Remove refrigerant compressor (83–522).
- 3 Attach holding device to refrigerant compressor and clamp into vise. Screw-off pipeline (7) from refrigerant compressor (1). For this purpose remove screw (8 and 21). Then close opening by means of pressing-off plate.

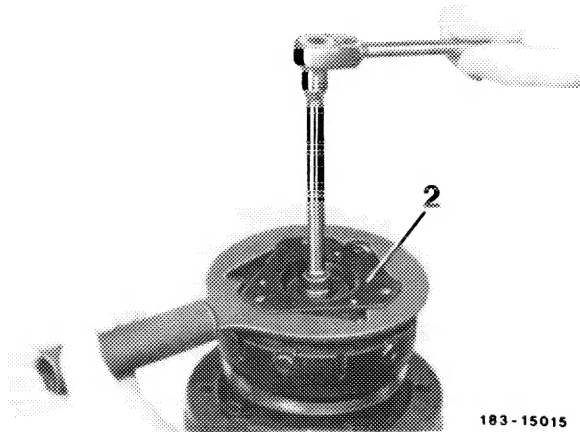




4 Loosen refrigerant compressor from holding device and retighten with the drive shaft in upward position.

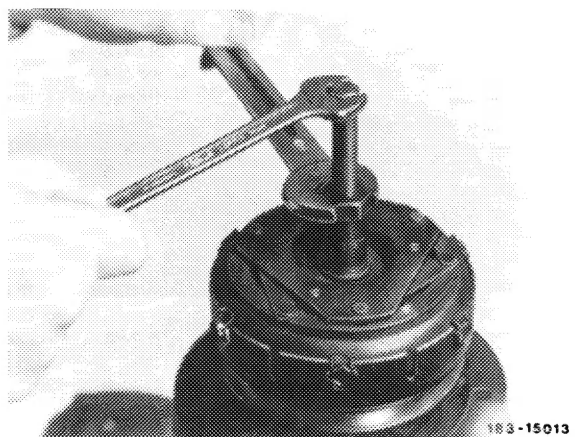


5 Prevent spring plate (2) from rotating by means of holding wrench, screw off nut from shaft using socket 14 mm.



6 Screw disassembling tool into hub holding tool by means of wrench and tighten central screw.

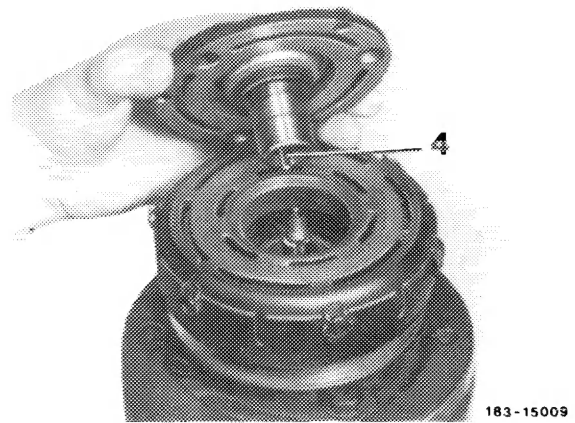
7 Take out key in shaft.



## Installation

8 Clean friction area of spring plate and of clutch.

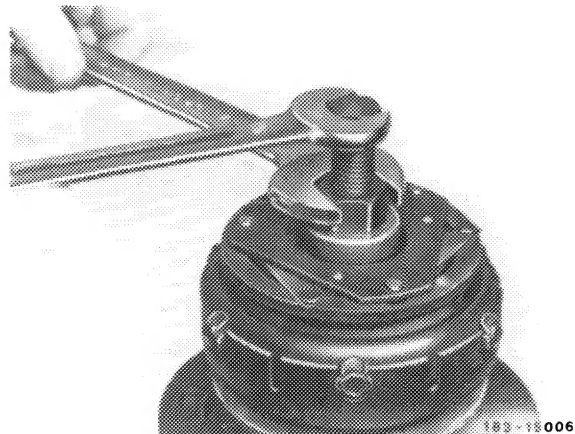
9 Insert wedge (4) into groove of hub in such a manner that it is projecting by about 5 mm.



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10 Put spring plate on shaft in such a manner that wedge and groove are in alignment.

11 Place spacer on spring plate. Insert assembling tool through spacer and screw assembling tool to shaft end.



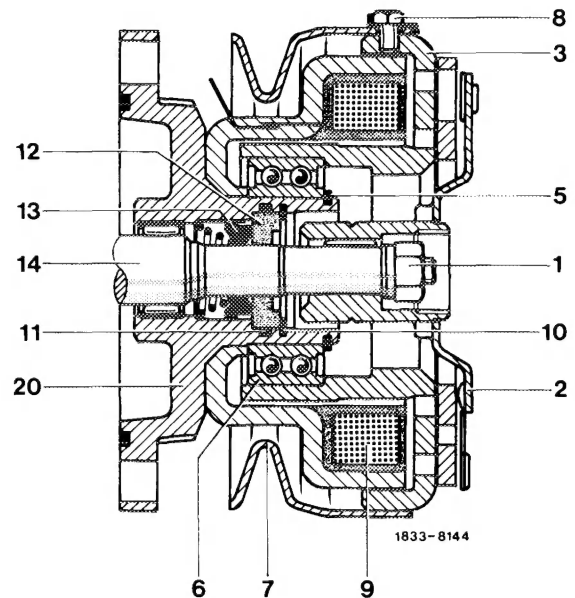
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13 Take out assembling tool and spacer.

14 Screw in place new screw on shaft (smaller diameter of nut directed toward shoulder of shaft) and tighten. Check play once again.

15 Install refrigerant compressor (83-522).

- 1 Nut on drive shaft
- 2 Spring plate
- 3 Clutch
- 5 Locking ring
- 6 Support for clutch
- 7 Belt pulley
- 8 Screw with lock
- 9 Magnet coil
- 10 Locking ring
- 11 O-ring
- 12 Slip ring
- 13 Shaft sealing
- 14 Drive shaft
- 20 Housing cover

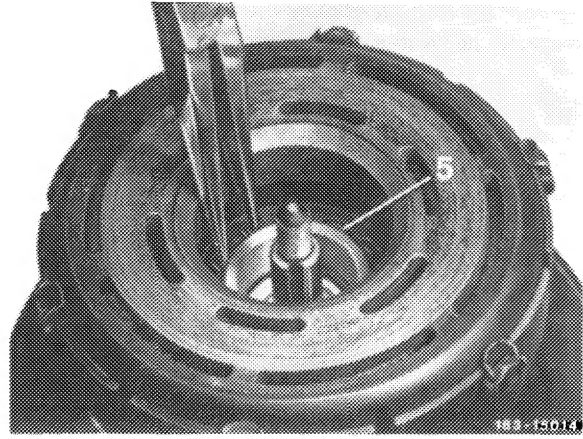


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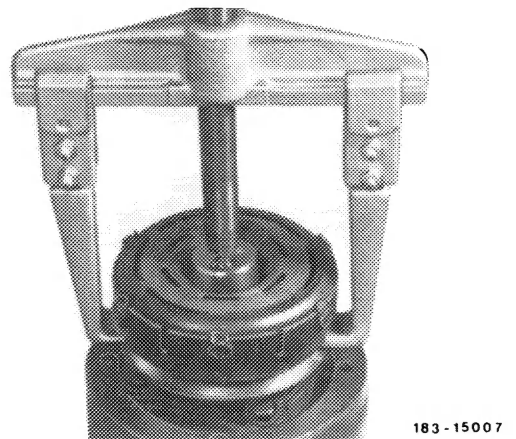
- b) Remove and install clutch together with belt pulley, magnet coil and bearing**

#### Removal

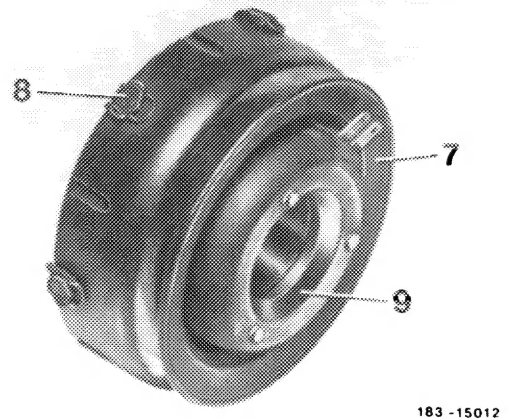
- 16 Remove spring plate (83-526, section a, item 1 to 7).
- 17 Take out lock (5). Mark position of magnet coil terminals.



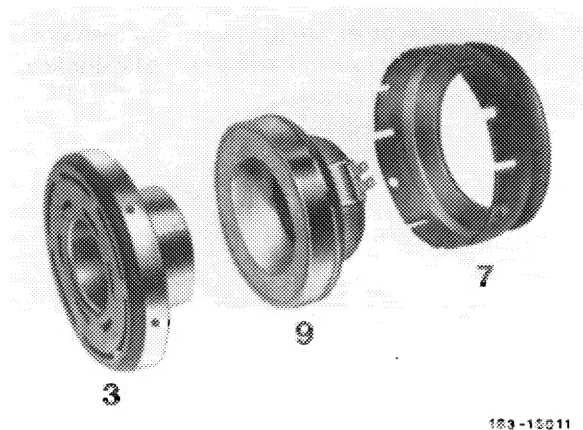
- 18 Insert guide piece over shaft on headpiece of refrigerant compressor.
- 19 Pull off assembly by means of puller.



- 20 Bend away locks on hex. screws and take off the 6 screws (8) together with locks.



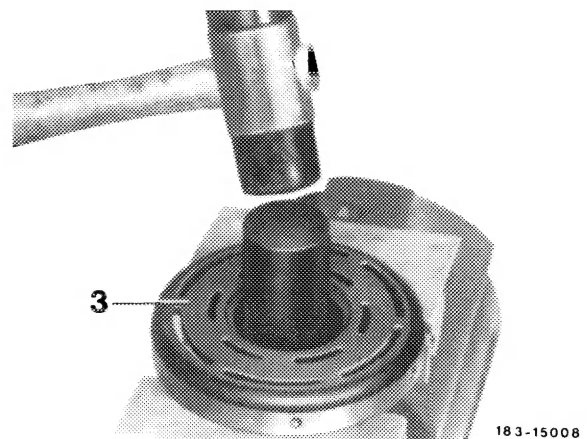
- 21 Take off belt pulley from clutch and remove magnet coil from belt pulley.



**Note:** If bearing (6) of clutch body (3) must be replaced, perform jobs as per item 22 through 24.

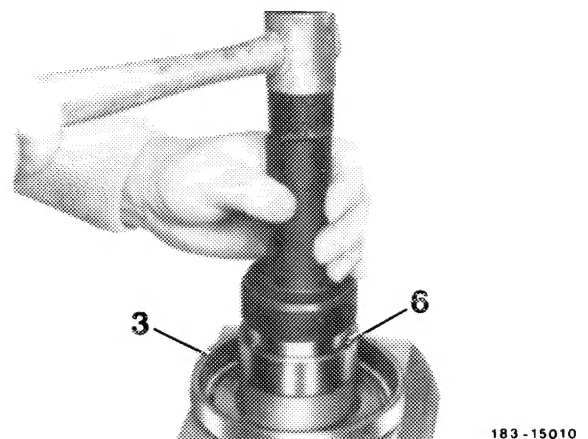
### Removal of bearing

22 Place clutch (3) on wooden supports and press-out bearing (6). For removal of the bearing, the notches need not be removed.

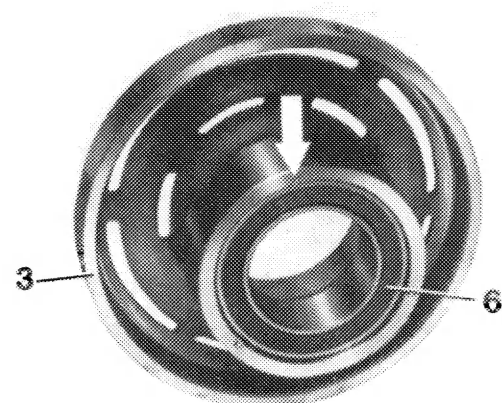


### Installation of bearing

23 Align new bearing (6) exactly in relation to bore of hub and press-in.

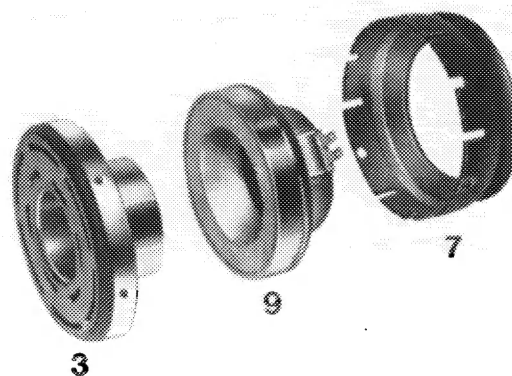


24 Punch-mark the bearing at 3 points at  $120^\circ$  distant from each other. Do not punch too deep since otherwise the outer race of bearing may be deformed. Do not use again old notches.

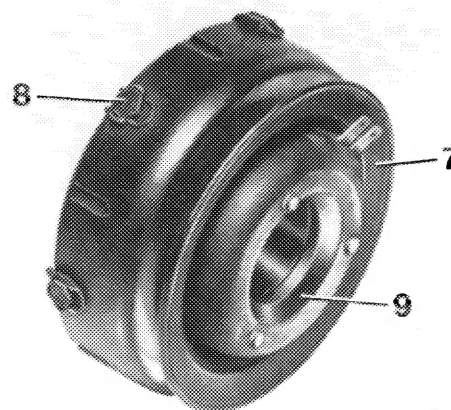


## Installation

- 25 Insert magnet coil (9) into belt pulley (7).



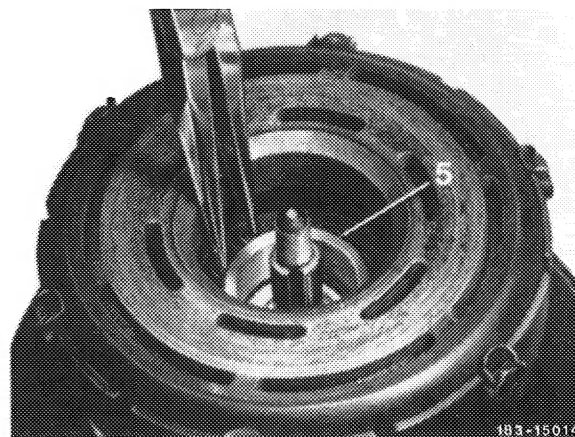
- 26 Slip clutch (3) into belt pulley (7) and provisionally screw-in by means of new locks and screws (8). Provide threads of screws with Loctite.



- 27 Put down complete assembly on housing cover front. Before pressing assembly completely down, make sure that the magnet coil terminals are in the correct position in relation to refrigerant compressor and that the three projections on the back of the magnet coil are in correspondence with the recesses in the housing cover.



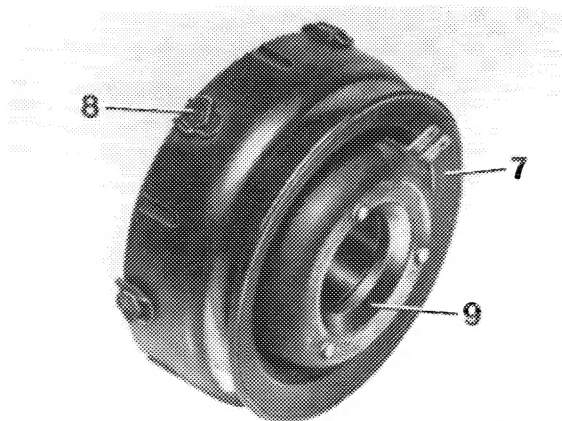
- 28 Insert locking ring (5) for the assembly.
- 29 Clean friction areas of spring plate and clutch.



30 Rotate belt pulley together with clutch in order to determine whether the belt pulley is in alignment. Slightly readjust, if required.

31 Tighten screws (8) of pulley/clutch. Secure screw heads in a similar manner as the screws were secured prior to removal.

32 Install refrigerant compressor (83-522).



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